AMENDMENTS TO THE SPECIFICATION

Please insert the following heading beginning at page 1, line 2:

-- CROSS REFERENCE TO RELATED APPLICATIONS --

Please insert the following heading beginning at page 1, line 2 following the heading "CROSS REFERENCE TO RELATED APPLICATIONS":

-- This application claims is a national stage application of Patent Cooperation Treaty No. PCT/GB2004/004158 filed September 30, 2004, published as WO2005/034163. In addition, this application claims priority to GB Application No. 0323001.8., filed October 1, 2003. Each of these applications is herein incorporated in its entirety by reference. --

Please insert the following heading beginning before the paragraph beginning at page 1, line 3:

-- FIELD OF THE INVENTION --

Please insert the following heading before the paragraph beginning at page 2, line 7:

-- SUMMARY OF THE INVENTION --

Please replace the paragraph beginning at page 3, line 11, with the following rewritten paragraph:

-- ~~The~~ One embodiment of the present invention differs from known systems in that such systems involve an expansion of the cross sectional area of the flowing gas to treat larger substrates. With one embodiment of the invention, the reverse in true. Indeed the increase in processing rate obtained with the invention is due to a concentration of species from a larger diameter into a smaller diameter. A further distinction can also be made in that, according to one embodiment, ~~preferably~~ the plasma source of the invention is arranged in close proximity with the workpiece. It is required to be no more remotely positioned than the physical separation caused by the existence of the guide.--

Please replace the paragraph beginning at page 5, line 1, with the following rewritten paragraph:

-- The guide is therefore, according to one embodiment, ~~preferably~~ adapted to direct towards (onto) the substrate at least the species generated substantially at or adjacent the periphery of the plasma, that is, at least in the active region mentioned above. --

Please replace the paragraph beginning at page 5, line 18, with the following rewritten paragraph:

-- The guide may take a number of other forms, for example as a funnel. ~~Preferably~~ According to one embodiment, the guide is substantially a hollow conical frustum in shape. In such a case it typically has a linear cross-section upon either side of its central axis. In alternative forms, a curved section may be provided. Furthermore, the guide may be part linear and part curved in section.--

Please replace the paragraph beginning at page 5, line 34, with the following rewritten paragraph:

-- The guide is typically positioned directly between the region in which the plasma is generated and the substrate. This provides an additional advantage in that the guide may be adapted to shield the substrate from electro-magnetic radiation originating from the plasma. This shielding according to one embodiment, ~~preferably~~ includes reducing the amount of substrate having a direct line of sight with the active regions of the plasma, and also in preventing radiant heat impinging upon the substrate from the hottest parts of the chamber. --

Please replace the paragraph beginning at page 6, line 6, with the following rewritten paragraph:

-- As is known, plasmas may comprise various kinds of active species, including ions, electrons and reactive neutral entities. In some cases it is desirable to prevent charged species from reaching the substrate surface and in such situations, in one embodiment, ~~preferably~~ the guide further comprises a plasma termination device, which is operative to attenuate the supply of

electrically charged species to the substrate. This may be achieved by the use of a conducting mesh as part of the guide device through which the gas flow passes. Alternatively or additionally, a magnet system may be used so as to divert the flow of electrically charged species.--

Please replace the paragraph beginning at page 6, line 22, with the following rewritten paragraph:

-- Contact of reactive species with various surfaces, such as those of the guide, may cause detrimental reaction with the surface in question and a reduction in the active species concentration. Therefore, one embodiment of the present invention, ~~preferably~~ the material(s) chosen for at least the surfaces of the guide which contact the gas flow, is arranged so as to reduce any quenching effect of the active species. The experiments described herein were performed with aluminium guide components only. More aggressive chemistries would require either different materials for the guide and chamber (e.g. Alumina, glass or for metal components, Nickel), or different coatings (e.g. Alumina on metal, or anodised aluminium).--

Please replace the paragraph beginning at page 6, line 35, with the following rewritten paragraph:

-- ~~The~~ In one embodiment of the present invention, the detrimental effect of contact between the species and the guide can also be mitigated by the heating of the guide to a predetermined temperature and ~~preferably~~ the apparatus further comprises a suitable heating system to effect this.--

Please replace the paragraph beginning at page 7, line 24, with the following rewritten paragraph:

-- In order to maximise the efficient use of the active region of the plasma, ~~preferably~~ in one embodiment the apparatus further comprises a deflector device within the chamber for directing the gas(es) introduced into the chamber towards the most active region(s) of the plasma. This ensures the supply of the fresh gas

to the regions, maximises the system efficiency and also maximises the concentration of the species generated.--

Please replace the paragraph beginning at page 8, line 1, with the following rewritten paragraph:

-- The substrate is supported within the gas flow using a suitable support. Examples of such supports include a table or platten upon which the substrate is positioned or a device to which the substrate is mounted and held in position. ~~Preferably~~ In one embodiment, the support (and therefore the substrate) is positioned within the chamber.--

Please replace the paragraph beginning at page 8, line 11, with the following rewritten paragraph:

-- In order to provide further adaptability, the support, in one embodiment, is ~~preferably~~ moveable with respect to the plasma generation region so as to provide the user with the facility of a controllable distance between the plasma and the substrate. The moveable nature of the support provides for the use of different plasma treatments. The guide may also be mounted to the support when in either the static or moveable form. This is particularly advantageous when used with a moveable support since this allows advantage to be taken of the increased species flux provided by a closer proximity to the active plasma region. --

Please replace the paragraph beginning at page 8, line 22, with the following rewritten paragraph:

-- In order to further control the reaction of the species with the substrate, the apparatus may ~~preferably~~ further comprises an electrical supply system which is adapted to supply an electrical potential difference to the support. Such a potential may be a DC signal but in one embodiment~~more preferably~~, it is an RF signal. --

Please replace the paragraph beginning at page 8, line 28, with the following rewritten paragraph:

-- ~~Preferably~~ In one embodiment, during the performance of the method in accordance with the second aspect of the invention, this electrical potential is provided to the substrate via the support so as to control the interaction of the species with the substrate. --

Please insert the following heading before the paragraph beginning at page 9, line 9:

-- BRIEF DESCRIPTION OF THE DRAWINGS --

Please insert the following heading before the paragraph beginning at page 9, line 23:

-- DETAILED DESCRIPTION --

Please replace the paragraph beginning at page 11, line 14, with the following rewritten paragraph:

-- This could be an active heating system whereby external electrical power is used to heat the guide components as is done for the chamber. ~~Preferably~~ In one embodiment, the plasma is used to provide the heating for the guide 12 components. We have determined that, for a unit constructed from thin sheet metal, the plasma heating effect can be significant and rapid, achieving in excess of 300_C at 3kW over a period of ten minutes or so. We have also determined that a unit designed for higher powers can exploit thermal expansion to control the temperature of the unit. If the guide section is constructed with an external diameter just less than that of the chamber 2 (for example, 1 or 2mm), it is found that initially the temperature rise is relatively rapid given that the guide 12 has little or no thermal contact with the temperature controlled surface that is the chamber wall. As the unit heats up it will expand until it achieves a dimension sufficient to provide a good thermal contact with the wall of the chamber. Experiment has shown this to be at a temperature in excess of 250_C. This provides a good thermal contact with the temperature-controlled wall, which then controls the temperature of the guide unit by providing a heat path to the heat sink that is the chamber wall. In this way a relatively simple construction is envisaged whereby initial heating may be performed during a heating stage with the wafer absent from the chamber but with the plasma running. Once a reasonable temperature has been achieved then the process can be performed on the wafer. Provided the guide section is

of sufficient mass, the temperature decay will be minimal for periods of several tens of minutes as the wafer is loaded for the process stage.--

Please replace the paragraph beginning at page 12, line 14, with the following rewritten paragraph:

-- It should be noted that at low ICP Power there might be insufficient heating to maintain a suitable temperature. We envisage the lighter material unit to be used in this instance. In this case, the unit is ~~preferably~~, in one embodiment, designed and implemented with a poor thermal contact to the temperature-controlled object (chamber). Temperature rise would be rapid until it came into equilibrium with radiative and convective heat loss mechanisms. For such a unit running at high power, and for a more robust unit running at very high power, it is preferable that the guide incorporate additional cooling, which might take the form of a cooling fluid flowing in grooves machined into the under-side of the guide, fluid passages or channels, or fluid-containing pipes attached to the non-plasma facing surface of the guide by either welding or some form of compression device.--

Please replace the paragraph beginning at page 15, line 25, with the following rewritten paragraph:

-- Uniformity of process is an important issue to be addressed. For a substrate wafer of a diameter larger than the throat of the guide it is possible for the neutral density to drop as a result of the expansion of process gases downstream of the guide throat. As the material flows down through the guide from the plasma source it is compressed during its transit through the gap between the guide throat and the table. Once past this point the material expands as both radius increases and in the axial direction away from the table surface. This is illustrated at 71 in Figure 5. There is as associated reduction in the density of reactive material in contact with the edge of a wafer located at a radius greater than that of the throat, which produces non-uniformity in the

process. If the gap behind the guide is filled so that the underside of the guide is parallel with the surface of the table then the axial expansion is prevented (Figure 6). To compensate for the expansion of gases as radius increases the underside of the guide is ~~preferably~~, in one embodiment, sloped such that the gap diminishes as radius increases (see Figure 7). This has the effect of recompressing the gas flow as it travels outwards across the wafer and table toward the periphery of the chamber and thence to the pumping port. --